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09/752,297

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EXAMINER

WALLACE, SCOTT A

ART UNIT

PAPER NUMBER

2671

DATE MAILED: 08/26/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/752,297

Applicant(s)

NELSON ET AL.

Examiner

Scott Wallace

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 15-21 is/are rejected.
- 7) ☒ Claim(s) 8-14 and 22-28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.
2. As per the applicants argument on page 9, that the prior art used does not teach using the samples of a pixel instead of the pixel, Maher teaches finding the distance to the elements within a pixel (fig 3 and column 4 lines 1-30), which is like having four sample points within a pixel.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 1-2, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher, U.S. Patent No. 5,559,529 in view of Wong et al, U.S. Patent No. 6,501,483.
4. As per claim 1, Maher discloses a method for displaying lines on a display device (abstract), said method comprising: generating a plurality of sample positions in a two-dimensional space, wherein the plurality of sample positions corresponds to a pixel (column 3 lines 64-67 and column 4 lines 1-31); determining a sample normal distance for each of the sample positions with respect to a line in the two-dimensional space (column 4 lines 10-31); assigning a plurality of sample values to said plurality of sample positions based on the sample normal distance of each of said sample positions (column 2 lines 17-22); transmitting the pixel value to a display device (abstract). However, Maher does not specifically disclose operating on said plurality of sample values to determine a pixel value for the pixel. This is disclosed in Wong et al in column 2 lines 8-43. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the super sampling of Wong with the system of Maher because this would provide an effective anti-aliasing solution (column 2 lines 40-43).

5. As per claims 2 and 16, Maher discloses wherein said sample values comprise color values (column 1 lines 40-43).

6. As per claim 15, Maher disclose a graphics system for displaying lines on a display device (abstract), the graphics system comprising: a sample buffer (column 3 lines 40-55, proms); a rendering unit configured to a) generate a plurality of sample positions in a two-dimensional space, wherein the plurality of sample positions correspond to a pixel (column 3 lines 64-67 and column 4 lines 1-31), b) determine a sample normal distance for each of the sample positions with respect to a line in the two-dimensional space (column 4 lines 10-31), c) assign sample values to said positions based on the sample normal distance of each of said sample positions (column 2 lines 17-22), and d) store said sample values in said sample buffer (column 3 lines 40-55); a pixel calculation unit configured to read said sample values from the sample buffer and transmit the pixel value to a display device (abstract). However, Maher does not specifically disclose operate on said sample values to determine a pixel value for the pixel. This is disclosed in Wong et al in column 2 lines 8-43. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the super sampling of Wong with the system of Maher because this would provide an effective anti-aliasing solution (column 2 lines 40-43).

7. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher in view of Wong et al in further in view of Law, U.S. Patent No. 6,133,901.

8. As per claims 3 and 17, Maher in view of Wong et al does not disclose wherein said sample values comprise transparency values. This is disclosed in Law in column 7 lines 6-20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the transparency values of Law with the systems of Maher and Wong because this would help see the line if the line is overlapping or behind another object.

9. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher in view of Wong et al in further in view of Hinman et al, U.S. Patent No. 5,940,049.

10. As per claims 4 and 18, Maher in view of Wong does not disclose wherein said operating on said plurality of sample values comprises: spatially filtering said plurality of sample values. This is disclosed in Hinman et al in column 10 lines 40-48. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use spatial filtering as in Hinman with the systems of Maher and Wong because this would provide edge enhancement.

11. Claims 5-7 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher in view of Wong et al in further in view Nakayama et al, U.S. Patent No. 5,487,142.

As per claims 5 and 19, Maher in view of Wong does not specifically disclose wherein said determining said sample normal distance for each of the sample positions with respect to said line comprises: computing a vertical displacement between the sample position and the line; and multiplying the vertical displacement by a slope correction factor. However, this is disclosed in Nakayama et al in column 5 lines 40-50. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the slope correction factor of Nakayama et al with the systems of Maher and Wong because this would have made it possible to draw a smooth straight line only having very small steps (column 6 lines 1-10).

12. As per claims 6 and 20, Maher in view of Wong does not specifically disclose wherein said determining said sample normal distance for each of the sample positions with respect said line comprises: computing a horizontal displacement between the sample position and the line; and multiplying the horizontal displacement by a slope correction factor. However, this is disclosed in

Nakayama et al in column 5 lines 40-50. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the slope correction factor of Nakayama et al with the systems of Maher and Wong because this would have made it possible to draw a smooth straight line only having very small steps (column 6 lines 1-10).

13. As per claims 7 and 21, Maher discloses wherein said assigning the plurality of sample values to said plurality of sample positions based on the sample normal distance of each sample positions (column 5 lines 14-17). However, Maher in view of Wong does not specifically disclose determining a window value according to a window function for each of said sample positions based on the corresponding sample normal distance; computing said sample value for each of said sample positions based on the corresponding window value. This disclosed in Nakayama et al in column 4 lines 20-67. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the window function (occupying ratio calculating means) of Nakayama et al with the systems of Maher and Wong because this would have made it possible to draw a smooth straight line having a high quality (column 4 lines 25-30).

***Allowable Subject Matter***

14. Claims 8-14, 22-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA,  
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Wallace whose telephone number is 703-605-5163. The examiner can normally be reached on Monday thru Friday from 8:30am to 5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached on 703-305-9798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC)  
at 866-217-9197 (toll-free).



MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600